WHAT IS CLAIMED IS:

1. A method of making a component of a medical device, comprising:

longitudinally stretching a tube-shaped article while heating the tube-shaped article and pressurizing an interior of the tube-shaped article to form the component of the medical device.

2. The method of claim 1, wherein, while longitudinally stretching the tube-shaped article, the tube-shaped article is heated to a temperature that is at least about 0.85 times a glass transition temperature of the tube-shaped article.

3. The method of claim 1, wherein, while longitudinally stretching the tube-shaped article, a pressure in the interior of the tube-shaped article is at least about 50 psi.

4. The method of claim 1, wherein, while longitudinally stretching the tube-shaped article, a longitudinal strain of the tube-shaped article is at least about 110%.

5. The method of claim 1, further comprising longitudinally stretching a second tube-shaped article while heating the second tube-shaped article and pressurizing an interior of the second tube-shaped article to form a second component of the medical device, and joining the two components of the medical device.

6. The method of claim 1, wherein the tube-shaped article includes a first section and a second section, and the method includes longitudinally stretching the first section while heating the first section and pressurizing an interior of the first section, without longitudinally stretching the second section.

7. The method of claim 1, wherein the medical device is a catheter.

8. The method of claim 7, wherein the medical device is a balloon catheter.

9. The method of claim 8, wherein the balloon catheter comprises a balloon selected from the group consisting of coronary balloons, aortic balloons, peripheral balloons, reperfusion balloons, endoscopy balloons, urology balloons and neurology balloons.

10. The method of claim 7, wherein the medical device is a catheter configured to deliver an endoprosthesis to a body vessel.

11. The method of claim 10, wherein the endoprosthesis is a self-expanding stent.

12. The method of claim 10, wherein the endoprosthesis is a balloon-expandable stent.

13. The method of claim 7, wherein the catheter has a length of from about 30 centimeters to about 180 centimeters.

14. The method of claim 7, wherein the catheter has an outer diameter of from about 0.020 inch to about 0.180 inch.

15. The method of claim 1, wherein the component is a hypotube sheath portion of a catheter.

16. The method of claim 15, wherein the hypotube sheath portion has a length of from about 0.100 inch to about 60 inches.

17. The method of claim 15, wherein the hypotube sheath portion has an outer diameter of from about 0.015 inch to about 0.180 inch.

18. The method of claim 1, wherein the component is a midshaft portion of a catheter.

19. The method of claim 18, wherein the midshaft portion has a length of from about four centimeters to about 25 centimeters.

20. The method of claim 18, wherein the midshaft portion has an outer diameter of from about 0.015 inch to about 0.180 inch.

21. The method of claim 1, wherein the component is a distal outer portion of a catheter.

22. The method of claim 21, wherein the distal outer portion has a length of from about ten centimeters to about 40 centimeters.

23. The method of claim 21, wherein the distal outer portion has an outer diameter of from about 0.015 inch to about 0.180 inch.

24. The method of claim 1, wherein the component is a distal inner portion of a catheter.

25. The method of claim 24, wherein the distal inner portion has a length of from about ten centimeters to about 40 centimeters.

26. The method of claim 24, wherein the distal inner portion has an outer diameter of from about 0.015 inch to about 0.180 inch.

27. The method of claim 1, wherein a wall thickness of the component is less than a wall thickness of the tube-shaped article.

28. The method of claim 1, wherein an outer diameter of the component is less than an outer diameter of the tube-shaped article.

29. The method of claim 1, wherein an inner diameter of the component is less than an inner diameter of the tube-shaped article.

30. The method of claim 1, wherein the component has a tensile strength of at least about 21,000 psi.

31. The method of claim 1, wherein the component has a hoop stress of at least about 3300 psi.

32. The method of claim 1, wherein the tube-shaped article comprises at least one layer.

33. The method of claim 32, wherein the at least one layer comprises a polymer.

34. The method of claim 1, wherein the tube-shaped article comprises at least two layers.

35. The method of claim 34, wherein the tube-shaped article comprises a first layer comprising a first polymer and a second layer comprising a second polymer, the first polymer being different from the second polymer.

36. The method of claim 34, wherein the at least two layers are coextruded.

37. The method of claim 34, wherein the at least two layers are joined by an adhesive.

38. A method of making a tube-shaped component of a medical device, comprising heating a tube-shaped article while pressurizing an interior of the tube-shaped article to form the tube-shaped component of the medical device.

39. The method of claim 38, wherein, while pressurizing the interior of the tube-shaped article, the tube-shaped article is heated to a temperature that is at least about 0.85 times a glass transition temperature of the tube-shaped article.

40. The method of claim 38, wherein, while heating the tube-shaped article, a pressure in the interior of the tube-shaped article is at least about 50 psi.

41. The method of claim 38, further comprising heating a second tube-shaped article while pressurizing an interior of the second tube-shaped article to form a second tube-shaped component of the medical device; and joining the two tube-shaped components of the medical device.

42. The method of claim 38, wherein the tube-shaped article includes a first section and a second section, and the method includes heating the first section while pressurizing an interior of the first section, without radially stretching the second section.

43. The method of claim 38, wherein the medical device is a catheter.

44. The method of claim 43, wherein the medical device is a balloon catheter.

45. The method of claim 44, wherein the balloon catheter comprises a balloon selected from the group consisting of coronary balloons, aortic balloons, peripheral balloons, reperfusion balloons, endoscopy balloons, urology balloons and neurology balloons.

46. The method of claim 43, wherein the medical device is a catheter configured to deliver an endoprosthesis to a body vessel.

47. The method of claim 46, wherein the endoprosthesis is a self-expanding stent.

48. The method of claim 46, wherein the endoprosthesis is a balloon-expandable stent.

49. The method of claim 43, wherein the catheter has a length of from about 30 centimeters to about 180 centimeters.

50. The method of claim 43, wherein the catheter has an outer diameter of from about 0.020 inch to about 0.180 inch.

51. The method of claim 38, wherein the tube-shaped component is a hypotube sheath portion of a catheter.

52. The method of claim 51, wherein the hypotube sheath portion has a length of from about 0.100 inch to about 60 inches.

53. The method of claim 51, wherein the hypotube sheath portion has an outer diameter of from about 0.015 inch to about 0.180 inch.

54. The method of claim 38, wherein the tube-shaped component is a midshaft portion of a catheter.

55. The method of claim 54, wherein the midshaft portion has a length of from about four centimeters to about 25 centimeters.

56. The method of claim 54, wherein the midshaft portion has an outer diameter of from about 0.015 inch to about 0.180 inch.

57. The method of claim 38, wherein the tube-shaped component is a distal outer portion of a catheter.

58. The method of claim 57, wherein the distal outer portion has a length of from about ten centimeters to about 40 centimeters.

59. The method of claim 57, wherein the distal outer portion has an outer diameter of from about 0.015 inch to about 0.180 inch.

60. The method of claim 38, wherein the tube-shaped component is a distal inner portion of a catheter.

61. The method of claim 60, wherein the distal inner portion has a length of from about ten centimeters to about 40 centimeters.

62. The method of claim 60, wherein the distal inner portion has an outer diameter of from about 0.015 inch to about 0.180 inch.

63. The method of claim 38, wherein a wall thickness of the tube-shaped component is less than a wall thickness of the tube-shaped article.

64. The method of claim 38, wherein an outer diameter of the tube-shaped component is less than an outer diameter of the tube-shaped article.

65. The method of claim 38, wherein an inner diameter of the tube-shaped component is less than an inner diameter of the tube-shaped article.

66. The method of claim 38, wherein the tube-shaped component has a tensile strength of at least about 21,000 psi.

67. The method of claim 38, wherein the tube-shaped component has a hoop stress of at least about 3300 psi.

68. The method of claim 38, wherein the tube-shaped article comprises at least one layer.

69. The method of claim 68, wherein the at least one layer comprises a polymer.

70. The method of claim 38, wherein the tube-shaped article comprises at least two layers.

71. The method of claim 70, wherein the tube-shaped article comprises a first layer comprising a first polymer and a second layer comprising a second polymer, the first polymer being different from the second polymer.

72. The method of claim 70, wherein the at least two layers are coextruded.

73. The method of claim 70, wherein the at least two layers are joined by an adhesive.

74. A component of a medical device, wherein the component comprises a polymer having a tensile strength of at least about 21,000 psi.

75. The component of claim 74, wherein the component is tube-shaped.

76. The component of claim 74, wherein the component is a catheter.

77. The component of claim 74, wherein the component comprises a first layer and a second layer, the first layer having a different flexibility from the second layer.

78. The component of claim 74, wherein the tensile strength is at least about 22,500 psi.

79. The component of claim 74, wherein the polymer has a hoop stress of at least about 3300 psi.

80. A tube-shaped portion of a catheter, the tube-shaped portion having a tensile strength of at least about 21,000 psi.

81. The tube-shaped portion of claim 80, wherein the tube-shaped portion comprises a first layer and a second layer, the first layer having a different flexibility from the second layer.

82. The tube-shaped portion of claim 80, wherein the tensile strength is at least about 22,500 psi.

83. The tube-shaped portion of claim 80, wherein the tube-shaped portion has a hoop stress of at least about 3300 psi.

84. A component of a medical device, wherein the component comprises a polymer having a hoop stress of at least about 3300 psi.

85. The component of claim 84, wherein the component is tube-shaped.

86. The component of claim 84, wherein the component is a catheter.

87. The component of claim 84, wherein the component comprises a first layer and a second layer, the first layer having a different flexibility from the second layer.

88. The component of claim 84, wherein the hoop stress is at least about 3500 psi.

89. A tube-shaped portion of a catheter, the tube-shaped portion having a hoop stress of at least about 3300 psi.

90. The tube-shaped portion of claim 89, wherein the tube-shaped portion comprises a first layer and a second layer, the first layer having a different flexibility from the second layer.

91. The tube-shaped portion of claim 89, wherein the hoop stress is at least about 3500 psi.

92. A component of a medical device, wherein the component comprises a polymer having a load at break ratio of at least about 1.25.

93. The component of claim 92, wherein the component is tube-shaped.

94. The component of claim 92, wherein the component is a catheter.

95. The component of claim 92, wherein the component comprises a first layer and a second layer, the first layer having a different flexibility from the second layer.

96. The component of claim 92, wherein the load at break ratio is at least about 1.5.

97. The component of claim 92, wherein the polymer has a tensile strength of at least about 21,000 psi.

98. The component of claim 92, wherein the polymer has a hoop stress of at least about 3300 psi.

99. A tube-shaped portion of a catheter, the tube-shaped portion having a load at break ratio of at least about 1.25.

100. The tube-shaped portion of claim 99, wherein the tube-shaped portion comprises a first layer and a second layer, the first layer having a different flexibility from the second layer.

101. The tube-shaped portion of claim 99, wherein the load at break ratio is at least about 1.5.

102. The tube-shaped portion of claim 99, wherein the tube-shaped portion has a tensile strength of at least about 21,000 psi.

103. The tube-shaped portion of claim 99, wherein the tube-shaped portion has a hoop stress of at least about 3300 psi.

104. A component of a medical device, wherein the component comprises a polymer having a hoop stress ratio of at least about 1.25.

105. The component of claim 104, wherein the component is tube-shaped.

106. The component of claim 104, wherein the component is a catheter.

107. The component of claim 104, wherein the component comprises a first layer and a second layer, the first layer having a different flexibility from the second layer.

108. The component of claim 104, wherein the hoop stress ratio is at least about 1.5.

109. The component of claim 104, wherein the polymer has a tensile strength of at least about 21,000 psi.

110. The component of claim 104, wherein the polymer has a hoop stress of at least about 3300 psi.

111. The component of claim 104, wherein the polymer has a load at break ratio of at least about 1.25.

112. A tube-shaped portion of a catheter, the tube-shaped portion having a hoop stress ratio of at least about 1.25.

113. The tube-shaped portion of claim 112, wherein the tube-shaped portion comprises a first layer and a second layer, the first layer having a different flexibility from the second layer.

114. The tube-shaped portion of claim 112, wherein the hoop stress ratio is at least about 1.5.

115. The tube-shaped portion of claim 112, wherein the tube-shaped portion has a tensile strength of at least about 21,000 psi.

116. The tube-shaped portion of claim 112, wherein the tube-shaped portion has a hoop stress of at least about 3300 psi.

117. The tube-shaped portion of claim 112, wherein the tube-shaped portion has a load at break ratio of at least about 1.25.

118. A component of a medical device, wherein the component comprises a polymer having a post buckle fracture tensile strength of at least about 6500 psi.

119. The component of claim 118, wherein the component is tube-shaped.

120. The component of claim 118, wherein the component is a catheter.

121. The component of claim 118, wherein the component comprises a first layer and a second layer, the first layer having a different flexibility from the second layer.

122. The component of claim 118, wherein the post buckle fracture tensile strength is at least about 8000 psi.

123. The component of claim 118, wherein the polymer has a tensile strength of at least about 21,000 psi.

124. The component of claim 118, wherein the polymer has a hoop stress of at least about 3300 psi.

125. A tube-shaped portion of a catheter, the tube-shaped portion having a post buckle fracture tensile strength of at least about 6500 psi.

126. The tube-shaped portion of claim 125, wherein the tube-shaped portion comprises a first layer and a second layer, the first layer having a different flexibility from the second layer.

127. The tube-shaped portion of claim 125, wherein the post buckle fracture tensile strength is at least about 8000 psi.

128. The tube-shaped portion of claim 125, wherein the tube-shaped portion has a tensile strength of at least about 21,000 psi.

129. The tube-shaped portion of claim 125, wherein the tube-shaped portion has a hoop stress of at least about 3300 psi.